



# Strategies to Reduce Antibiotic Resistance and to Improve Infection Control

ROBIN OLIVER, M.D., CPE

# Antibiotic Stewardship

- ▶ **Antibiotic Stewardship:**
  - ▶ the effort to measure and improve how antibiotics are prescribed by clinicians and used by patients
- ▶ Improving antibiotic prescribing involves **implementing effective strategies** to **change** prescribing practices so that they are **aligned** with evidence-based recommendations for diagnosis and management

# The most important modifiable risk factor for antibiotic resistance

- ▶ The **most important** modifiable risk factor for antibiotic resistance: inappropriate prescribing of antibiotics.
- ▶ Approximately **half** of outpatient antibiotic prescribing might be inappropriate, including antibiotic selection, dosing, or duration, in addition to unnecessary antibiotic prescribing
- ▶ **At least 30%** of outpatient antibiotic prescriptions in the United States are **unnecessary**

# Antibiotic stewardship purpose

- ▶ **Antibiotic stewardship** is the effort to
  - ▶ **Measure** antibiotic prescribing;
  - ▶ **Improve** antibiotic prescribing by clinicians and use by patients so that antibiotics are only prescribed and used when needed;
  - ▶ **Minimize** misdiagnoses or delayed diagnoses leading to underuse of antibiotics; and
  - ▶ **Ensure** that the right drug, dose, and duration are selected when an antibiotic is needed

# The four elements of outpatient antibiotic stewardship

- ▶ The **CDC's four core elements** of outpatient antibiotic stewardship
  - ▶ **Commitment**
  - ▶ **Action** for policy and practice
  - ▶ **Tracking and reporting**
  - ▶ **Education and expertise**

# Core Elements: Commitment

- ▶ **Commitment:** Demonstration of dedication to and accountability for optimizing antibiotic prescribing and patient safety
  - ▶ Every person involved in patient care can act as an antibiotic steward.
  - ▶ Each clinician can make the choice to be an effective antibiotic steward during each patient encounter.

# Core Elements: Commitment

- ▶ **Clinicians** can demonstrate commitment to appropriate antibiotic prescribing by doing the following:
  - ▶ Write and display **public commitments** in support of antibiotic stewardship
    - ▶ For example, inappropriate antibiotic prescriptions for acute respiratory infections were reduced after clinicians displayed, in their examination rooms, a poster showing a letter from the clinician to their patients committing to prescribing antibiotics appropriately
  - ▶ Identify a **single leader** to direct antibiotic stewardship activities within a facility
  - ▶ Include antibiotic stewardship-related duties in position descriptions or **job evaluation criteria**.
  - ▶ Communicate with all clinic staff members to **set patient expectations**: use consistent messages when communicating with patients about the indications for antibiotics

# Core elements: Action for policy and practice

- ▶ **Action for policy and practice:** Implement at least **one policy or practice** to improve antibiotic prescribing, assess whether it is working, and modify as needed.
- ▶ A **stepwise approach** with achievable goals can facilitate policy and practice changes
- ▶ **Prioritizing interventions** according to feasibility, acceptability, resource commitment, and anticipated barriers to change is important.
- ▶ Action is necessary to transform policy and practice into measurable outcomes.

# Core elements: Action for policy and practice

- ▶ **Clinicians** can implement at least one of the following actions to improve antibiotic prescribing:
  - ▶ Use **evidence-based diagnostic** criteria and treatment recommendations.
  - ▶ Use **delayed** prescribing practices or **watchful waiting**, when appropriate

# Core elements: Action for policy and practice

- ▶ **Outpatient clinic and health care system leaders** can take at least one of the following actions to improve antibiotic prescribing based on established standards or national clinical practice guidelines:
  - ▶ **Provide communication skills training for clinicians-** strategies to address patient concerns regarding prognosis, benefits, and harms of antibiotic treatment; management of self-limiting conditions; and clinician concerns regarding managing patient expectations for antibiotics during a clinical visit
  - ▶ **Require written justification** in the medical record for non-recommended antibiotic prescribing.

## Core elements: Action for policy and practice

- ▶ **Provide support** for clinical decisions- Clinical decision support (like UpToDate) which provides specific information in electronic or print form during the typical workflow, can facilitate accurate diagnoses and effective management of common conditions
- ▶ **Use call centers, nurse hotlines, or pharmacist consultations** as triage systems to prevent unnecessary visits
  - ▶ These resources can be used to reduce unnecessary visits for conditions that do not require a clinic visit, such as a common cold.

# Core elements: Tracking and Reporting

- ▶ **Tracking and reporting:** Monitor antibiotic prescribing practices and offer regular feedback to clinicians, or have clinicians assess their own antibiotic prescribing practices themselves.
  - ▶ Tracking and reporting clinician antibiotic prescribing
    - ▶ Can guide changes in practice
    - ▶ Can be used to assess progress in improving antibiotic prescribing.
  - ▶ **Individualized feedback** provided to clinicians on antibiotic prescribing, particularly when compared with peers, is an effective way to promote adherence to evidence-based guidelines
  - ▶ **Feedback from clinicians** about stewardship interventions can help guide modifications to maximize the impact and improve the acceptability of stewardship interventions

# Core elements: Tracking and Reporting

- ▶ Tracking and reporting for identified high-priority conditions can be used to assess
  - ▶ Whether an antibiotic was appropriate for the assigned diagnosis
  - ▶ Whether the diagnostic criteria were met before assigning an antibiotic-appropriate diagnosis
  - ▶ Whether the selected antibiotic was the recommended agent
  - ▶ Whether the dose and duration were correct
  - ▶ Any complications of related to antibiotic use

# Core elements: Tracking and Reporting

- ▶ Clinicians can track and report their own antibiotic prescribing practices by doing at least one of the following:
  - ▶ Self-evaluate antibiotic prescribing practices.
  - ▶ Participate in continuing medical education and quality improvement activities to track and improve antibiotic prescribing

# Core elements: Tracking and Reporting

- ▶ **Outpatient clinic or health care system leaders** can do at least one of the following:
  - ▶ **Implement** at least one antibiotic prescribing tracking and reporting system.
  - ▶ **Assess and share performance** on quality measures and established reduction goals addressing appropriate antibiotic prescribing from health care plans and payers

# Core elements: Education and expertise

- ▶ **Education and expertise:** Provide educational resources to clinicians and patients on antibiotic prescribing, and ensure access to needed expertise on optimizing antibiotic prescribing
  - ▶ Education for patients and family members can **improve health literacy** and augment efforts to improve antibiotic use
  - ▶ Effective clinician education often includes **reviewing guidelines** for appropriate antibiotic prescribing
  - ▶ Effective clinician involves addressing the **psychosocial pressures** that influence antibiotic prescribing practices of clinicians (e.g., clinicians' concerns about patient satisfaction).
  - ▶ Ensure timely access to persons with **expertise**- Persons with expertise might include pharmacists or medical and surgical consultants

# Core elements: Education and expertise

- ▶ **Clinicians can educate patients and families** about appropriate antibiotic use by doing at least one of the following:
  - ▶ Use effective communications strategies to educate patients about when antibiotics are and are not needed.
    - ▶ For example, providing recommendations for when to seek medical care if patients worsen or do not improve are associated with higher visit satisfaction scores among patients who expected but were not prescribed antibiotics
  - ▶ Educate patients about the potential harms of antibiotic treatment.
  - ▶ Provide patient education materials.

# Core elements: Education and expertise

- ▶ **Outpatient clinic and health care system leaders** can provide education to clinicians and ensure access to expertise by doing at least one of the following:
  - ▶ **Provide face-to-face educational training:** Training can be provided by peers, colleagues, or opinion leaders, including other clinicians and pharmacists, and uses reinforcement techniques and peer-to-peer comparisons
  - ▶ **Provide continuing education activities** for clinicians.
    - ▶ Address appropriate antibiotic prescribing,
    - ▶ Review adverse drug events
    - ▶ Discuss communication strategies about appropriate antibiotic prescribing that can improve patient satisfaction

# Antibiotic Stewardship: Conclusion

- ▶ The core elements provide a framework for outpatient antibiotic stewardship
- ▶ Implementing the elements requires a thoughtful and consistent effort to achieve desired outcomes.
- ▶ This effort includes
  - ▶ Developing strategies and preparing individuals, facilities, or organizations for change
  - ▶ Developing and testing stewardship interventions
  - ▶ Identifying and addressing barriers to change
  - ▶ Evaluating progress toward established goals

# And finally,

- ▶ Outpatient settings remain a crucial component of antibiotic stewardship in the United States
- ▶ Establishing effective antibiotic stewardship interventions can protect patients and optimize clinical outcomes in outpatient health care settings.

# Bibliography

- ▶ Sanchez, G. V., Fleming-Dutra, K. E., Roberts, R. M., & Hicks, L. A. (2016). *Core Elements of Outpatient Antibiotic Stewardship* (Vol. 65, pp. 1-12, Rep. No. No. 6). Atlanta, GA: Center for Surveillance, Epidemiology, and Laboratory Services. MMWR